

Fish Kill Investigations: The Shenandoah, Cowpasture, and James Rivers



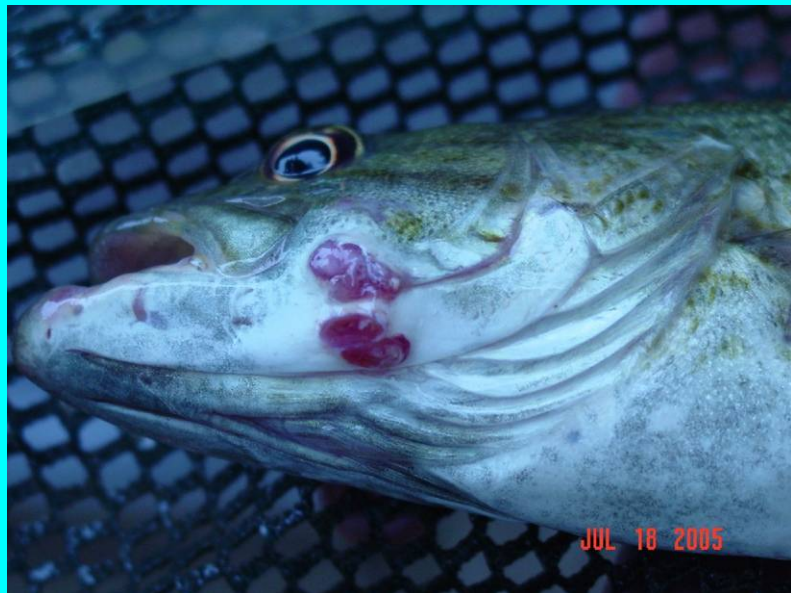
Early Spring 2004

It all started with a phone call....



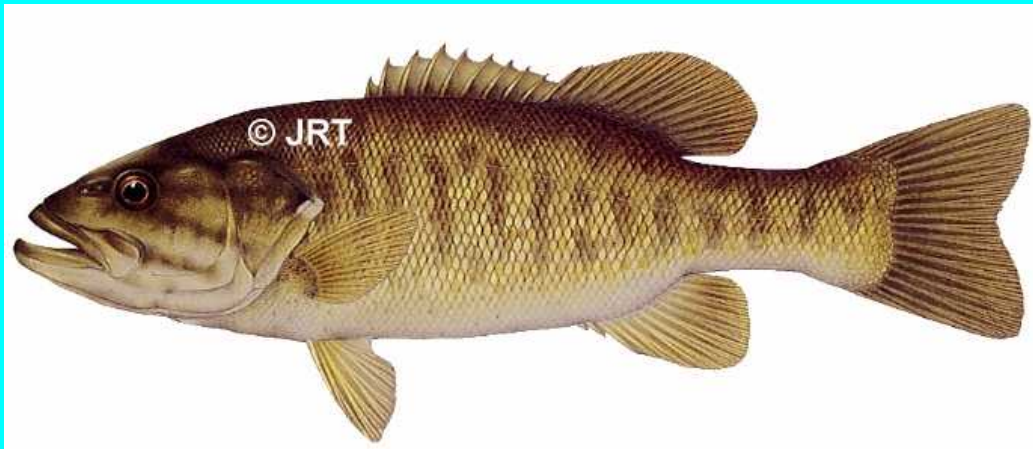
North Fork Shenandoah

- Low numbers: 2-3 months - spring
- Smallmouth bass, redbreast sunfish adults
- Other species - mostly unaffected
- Many fish with skin lesions



Up to 80% loss of the adult smallmouth bass and redbreast sunfish

- 75 miles of NF Shenandoah (2004)
- 100+ miles of SF Shenandoah (2005).



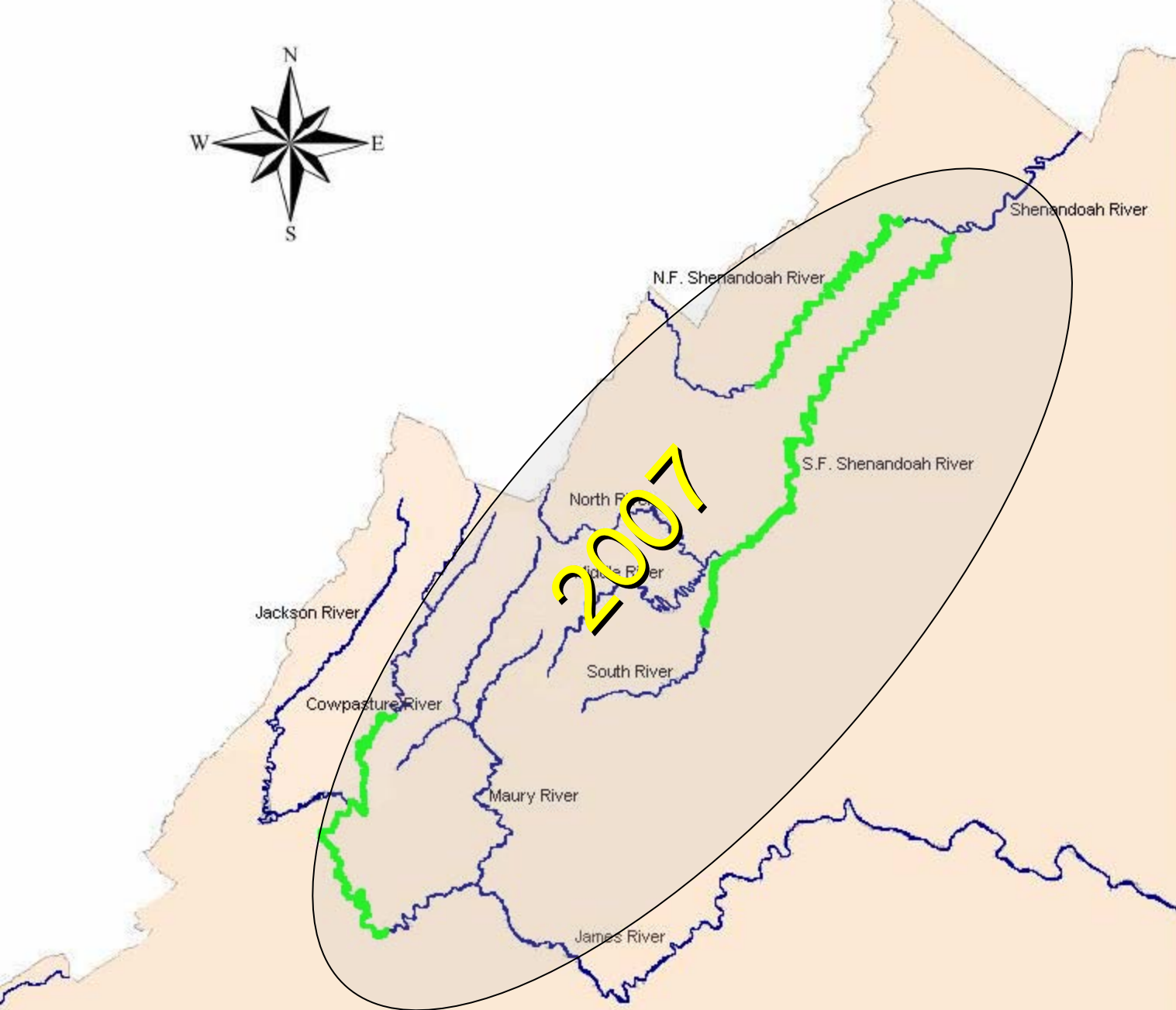
Fish Kill Events – The Facts

- **Spring 2002:** South Branch Potomac, WV - Large fish kill observed
- **Spring 2004:** N. Fork Shenandoah – 75 miles -smallmouth bass and redbreast sunfish – 3 months
- **Spring 2005:** S. Fork Shenandoah - 100 miles - Fish w/ lesions in March, then dead fish — 3 months
- **Spring 2006:** N. Fork Shenandoah – again – 30 mi. – and lower South River near Grottoes

Fish Kill Events - continued...

Spring 2007

- **North and South Forks Shenandoah – again!**
- **Lower Cowpasture River – Our “control” Stream – downstream of Route 39**
- **Upper James River**



2004

2005

2006

2007

A scenic view of a river flowing through a lush green forest. The river is calm, reflecting the surrounding greenery and the clear blue sky. The forest is dense with tall trees, and the mountains in the background are covered in a thick forest. The overall scene is peaceful and natural.

So, what's wrong
with this picture?

The Suspects / the Evidence:

- Water Quality (DEQ, USGS, Citizens)
 - Point sources – not consistent with the fish kills
 - Non Point – the jury is still out
 - High nutrients?
 - pH?
 - Temperature?
 - Fish tissue?
- Fish Health (USGS, VA Tech, USFWS)
 - Opportunistic bacteria, but not the cause?
 - High parasites?
 - Other diseases / pathogens?

Our Approach:

Partnerships

Public / Private

- **Government Agencies**
- **University Researchers**
- **Non-Profit Organizations**
 - **“Friends” Groups**
 - **Individuals**

2005

Shenandoah River Fish Kill Task Force

- **State - DEQ, DGIF, DCR**
- **Federal - USGS, USFWS, EPA**
- **Chesapeake Bay Foundation**
- **Shenandoah Pure Water 2000 Forum**
- **Canaan Valley Institute**
- **Potomac Conservancy**
- **Shenandoah RiverKeeper**
- **University Researchers (VA Tech, JMU, VCU)**
- **Agriculture Reps**
- **Citizens - Riparian Landowners**
 - **Citizen Water Monitoring Groups**
 - **Anglers / Fishing Guides**

Roles of Citizen Participants:

- **“Traditional” – WQ sampling**
- **Conducting Complex Studies**
- **Eyes and Ears**
- **Advocacy & seeking \$\$**
- **Partners around the table**

Citizen WQ sampling

- **Standard Networks**
- **“Storm Trooper” Volunteers**



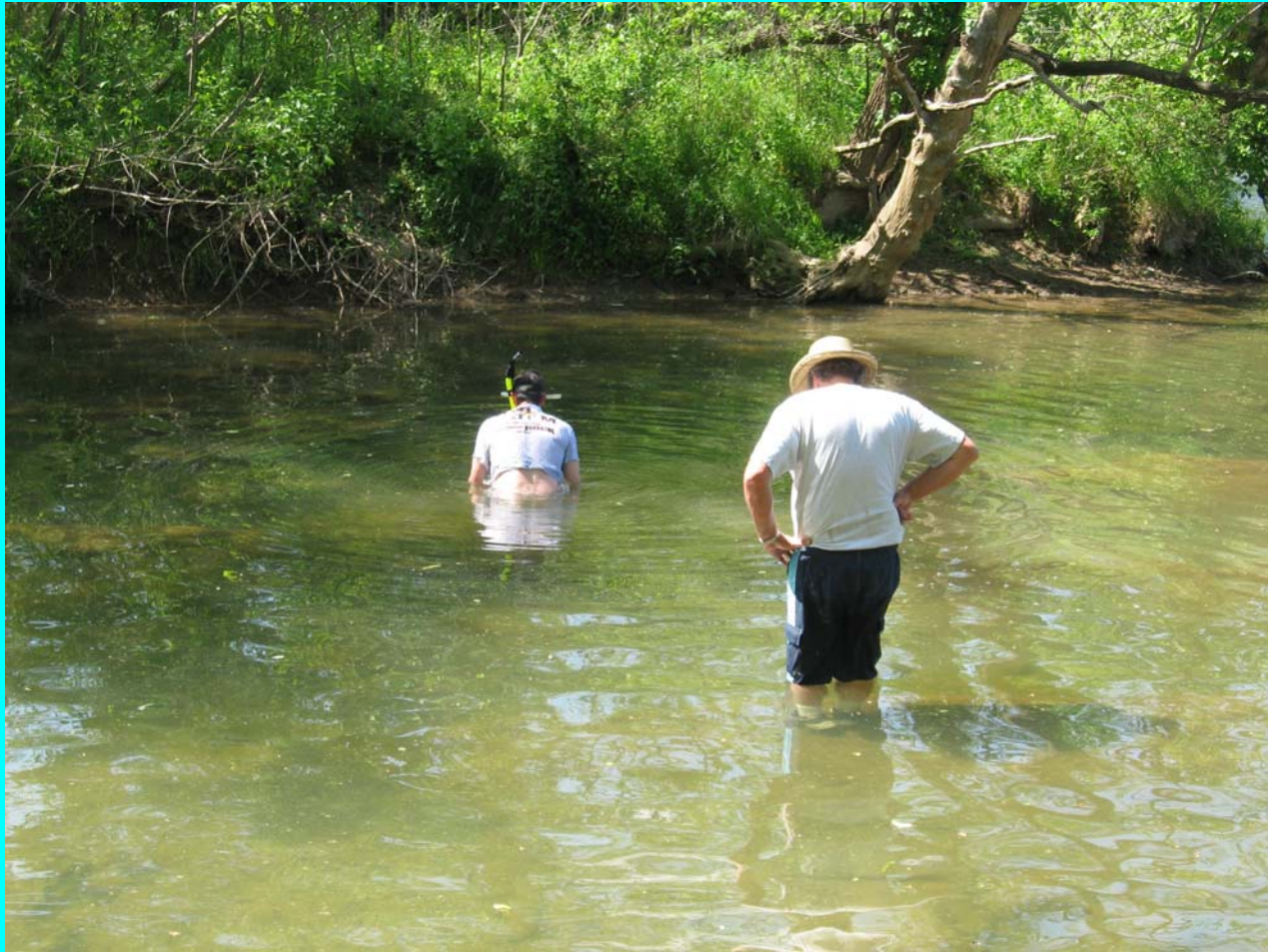
- **Data Implications**

Special Projects

- passive samplers -



Eyes and Ears







DEQ's Call for Help

- **Press Release: April 26, 2007**
- ***Virginia seeks public's help in fish kill investigation***
- ***To report dead or dying fish in the Shenandoah, Cowpasture, James and Maury river watersheds:***
- Contact DEQ's Harrisonburg office
(540) 574-7800
(800) 592-5482 (toll-free in Virginia)
- Information can also be emailed to
fishreports@deq.virginia.gov.
- Report the location, number and type of fish. Distressed fish are found mainly in eddies, shallow areas and slow-moving waters away from the main current.

Fishing Reports



Fishing Reports

Archive e-mails - Shen fish kills

File Edit View Favorites Tools Help

Back Forward Stop Search Folders

Address C:\DGK\General Work\Fish Kills\Shenandoah River Fish Kill Task Force\Archive e-mails - Shen fish kills

Folders

- Fishing Report
- Aeromonas Infections
- Aeromonas Infections (8)
- AIRMAIL
- Alleged Pesticide Runoff Fish Kill in SW VA 5-6 yrs ago
- Benthic studies for the North Fork
- Brown Foam on River 20 Nov 04
- Call from Reporters re NFSR Fish Kill
- Citizen Observations from Monday 24 May 2004 Electro shocking Fish Survey on NF Shenandoah River
- Comparison
- DATA_FRM
- dead fish hunting
- Filtered Mail food for thought
- Filtered Mail Re Fish Kill Escalating
- Filtered Mail RE Fish Kill Escalating (32)
- Filtered Mail RE Rapp Fishing Report
- Filtered Mail RE Update on the South Fork Shenandoah
- Fish Kill
- Fish Kill - Shenandoah River
- fish kill (102)
- Fish Kill Escalating
- fish kill in Shenandoah Co
- fish kill on South Fork Shenandoah River
- Fish Kill on the North Fork of the Shenandoah
- Fish Kill Summary
- Fish Kill Summary - Press Release info
- Fish Kill Summary (7)
- Fish Kill Work Group
- fish kills
- Fish Lesions
- Fishing Report
- Floating the North Fork
- FW Fishing Report
- FW (no subject)
- FW bass north fork
- FW Benthic studies for the North Fork
- FW Fecal coliform levels in the Shenandoah Valley
- FW fish dying in NF Shenandoah in 2004
- FW fish kill
- FW Fish Kill Hypothesis High Ammonia Levels
- FW Fish Kill on the North Fork of the Shenandoah
- FW Fish kills on the Shenandoah and Maurey Rivers -- 2004
- FW Floating the North Fork
- FW FW Fish Kill in NF Shen
- FW Governor's Report Item - Fish Kill
- FW High Fish Kill
- FW Mary Byler of N Va Daily wants to talk to you 800-296-3729 (caller ID #540-459-3729)
- FW meeting info on Thurs
- FW N F monitoring
- FW New USGS report on water quality of N F Shenandoah River
- FW NFSR Fish Kill summary
- FW North Fork Benthic Study
- FW North Fork Fish Kill Report
- FW North Fork Fish Sampling
- FW North Fork Fish Sampling (111)
- FW North Fork Fish Sampling (135)
- FW North Fork info
- FW North Fork info (150)
- FW North Fork info (151)
- FW North Fork Shen DO study
- FW North Fork Shenandoah
- FW North Fork Shenandoah Fish Lesions
- FW phosphorus rankings
- FW phosphorus rankings (97)
- FW Press Release - Fish Kill
- FW PRSC Meeting Thurs 26 May with DEQ & VGIF
- FW Rapp Fishing Report
- FW Rapp Fishing Report (103)
- FW RE NF Fish Kill
- FW Results of Fall Sampling of the North Fork
- FW Seeking input - South Fork Shenandoah Fish Kill
- FW Shenandoah article
- FW South Fork Shenandoah Pollution Headed towards the Bay Look Out and get ready
- FW State fish sampling on North Fork
- FW stream rankings for nit
- FW surf Va waters via epa
- FW Update on the South F
- FW Update on the South F
- FW Va Tech Report - South
- FW Water Quality in North
- FW Weds
- FW Woodstock STP
- FW Woodstock STP request
- Fwd Fish Kill
- Fwd Fish kill (24)
- Fwd Fw Results of Fall Sa
- Fwd FW Va Tech Report
- Fwd Media Alert - New Boc
- Fwd North Fork River Matt
- Fwd North Fork River Matt
- Fwd PRSC Meeting Thurs
- Fwd Re PRSC Meeting Th
- Fwd RE NF fishery tests
- Fwd RE S F Developing Fi
- Fwd Re South Fork Fish Ki
- Fwd South Fork Shenando
- Fwd Thanks
- Governor's Report Item - F
- grant
- here's the contact for cliff
- here's the spreadsheet you
- Investigative cost recovery
- Jay Eiche & Tanya Harvey
- Jay Eiche note - article
- Letter
- May 26th smallmouth club m
- MD Initiative to Promotethe
- Message from an unidentifi
- NF Shenandoah Benthics
- North Fork
- North Fork Caller - Dean Mi

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Fishing Reports

Microsoft Excel - Shenandoah River Fish Kill Reports 2004-2007

File Edit View Insert Format Tools Data Window Help

Type a question for help

100% Arial 10 B I U

Reply with Changes... Egd Review...

C26 Above Rt. 39; Near Rt. 625 Bridge

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Shenandoah River Fish Kill or Distress Reports by Date and Location													
2	Date		Location						Summary	Report	Report			
3		river	site	latitude	longitude	dead fish	w/ lesions	other	Public	Agency	Notable?			
124	5/23/2007	North Fork	Above Sparmine Rd	38.61933333	78.8015	•	•				Y	1		
125	5/23/2007	North Fork	Broadway Rt. 259	38.608	78.80016667	•	•				Y	1		
126	5/26/2007	North Fork	Reservoir Road Low Bridge to Burnshire Dam	38.8697	78.4896	•	•							
127	5/27/2007	North Fork	Quickensburg	38.6901	78.6639	•	•							
128	5/29/2007	North Fork	Broadway Rt. 259	38.608	78.80016667	•	•					1		
129	5/31/2007	North Fork	Edinburg	38.8223	78.5497	•	•							
130	6/1/2007	North Fork	Edinburg	38.8223	78.5497	•	•							
131	6/2/2007	North Fork	Bentonville	38.8403	78.3288	•	•							
132	6/3/2007	North Fork	South of Edinburg	38.8282	78.5492	•	•							
133	5/1/2007	North River	110 N Shore Dr in Bridgewater	38.37033333	78.96933333	•	•							
134	5/1/2007	North River	Bridgewater to Sandy Bottom	38.37333333	78.97316667	•	•				Y			
135	5/20/2007	North River	Bridgewater	38.37916667	78.9795	•	•				Y			
136	5/21/2007	Potomac	Whites Ferry to Edwards Ferry	39.1532	77.5222	•	•							
137	5/31/2007	Potomac	Violet's Lock	39.0646	77.3295	•	•							
138	6/20/2007	Potomac	Knoxville Falls	39.3254	77.6741	•	•							
139	6/30/2007	Potomac	Below Knoxville Falls	39.32	77.6675	•	•							
140	3/10/2007	South Fork	Karo	38.8695	78.25233333	•	•							
141	3/28/2007	South Fork	Island Ford Ramp	38.353	78.69066667	•	•				Y			
142	3/29/2007	South Fork	Alma to White House	38.6175	78.5535	•	•				Y	1		
143	3/29/2007	South Fork	Island Ford Ramp	38.353	78.69066667	•	•				Y			
144	4/1/2007	South Fork	Port Republic Boat Ramp	38.29083333	78.80466667	•	•					1		
145	4/20/2007	South Fork	Luray Dam	38.673	78.493	•	•				Y			
146	4/22/2007	South Fork	Upstream from Front Royal	38.86983333	78.25233333	•	•					1		
147	4/22/2007	South Fork	Front Royal	38.908	78.20616667	•	•				Y	1		
148	4/23/2007	South Fork	Gooney Creek	38.86983333	78.25233333	•	•				Y			
149	4/23/2007	South Fork	Shenandoah Dam	38.47483333	78.6225	•	•							
150	4/24/2007	South Fork	Port Republic Boat Ramp	38.29083333	78.80466667	•	•							
151	4/25/2007	South Fork	Between Island Ford and Elkton	38.38966667	78.65533333	•	•				Y	1		
152	4/25/2007	South Fork	Port Republic Boat Ramp	38.29083333	78.80466667	•	•					1		
153	4/25/2007	South Fork	Lynnwood	38.3075	78.76866667	•	•					1		
154	4/25/2007	South Fork	Island Ford Ramp	38.353	78.69066667	•	•				Y	1		
155	4/25/2007	South Fork	Shenandoah State Park to Gooney Creek	38.869	78.30233333	•	•				Y	1		

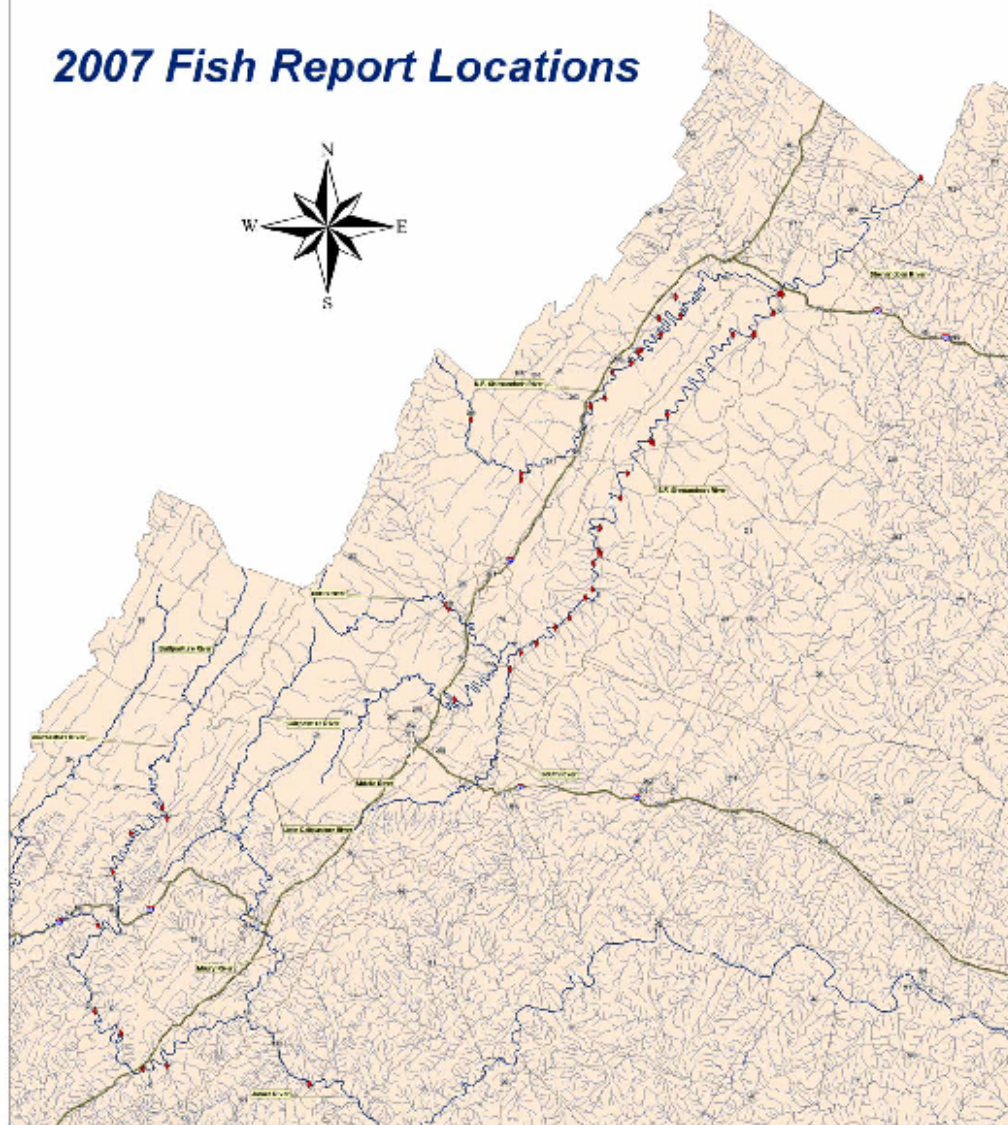
2007 Reports 2006 Reports 2005 Reports 2004 Reports

Ready NUM

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2007 Fish Report Locations



0 3 6 12 18 24 30 36 42 Miles

- Fish Report Locations
- Virginia Interstates
- Virginia Primary Highways
- Virginia Rivers/Streams
- Virginia Counties

Other Roles

- **Advocacy / Lobbying**
 - **Environmental Education**
 - **Networking**
 - **Funding / Political Support**
- **Direct Participation with Scientists**
 - **Task Force Subcommittees**

Challenges Ahead

- **Funding – year-by-year**
- **Science – elusive target**

Our Goal for the Future:

Continued Coordination, Communication, & Cooperation



Special Thanks:

- **Friends of the Shenandoah River**
- **Friends of the North Fork Shenandoah**
- **Cowpasture River Preservation Assoc.**
- **Augusta Stream Monitors**
- **Pure Water Forum**
- **Potomac Conservancy**
- **Shenandoah RiverKeeper**
- **Many, Many Individuals**